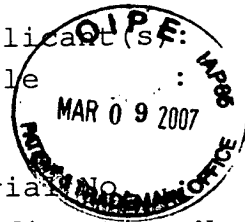


PATENT APPLICATION
IN THE U.S. PATENT AND TRADEMARK OFFICE

APR
IPW

Applicant(s): Wenjie DENG
Title: POWERED SURGICAL HANDPIECE WITH PRECISION SUCTION CONTROL



Serial No.: 10/047 742 Group: 3731
Confirmation No.: 3901
Filed: January 15, 2002 Examiner: Dawson
International Application No.: -
International Filing Date: -
Atty. Docket No.: S*EN C-247

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

FIRST CLASS MAILING CERTIFICATE

Sir:

I hereby certify that this correspondence is being deposited with the United States Postal Service under 37 CFR 1.8 as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on March 5, 2007.

Brian Tumm

Brian R. Tumm

BRT/ad

FLYNN, THIEL, BOUTELL	Dale H. Thiel	Reg. No. 24 323
& TANIS, P.C.	David G. Boutell	Reg. No. 25 072
2026 Rambling Road	Terryence F. Chapman	Reg. No. 32 549
Kalamazoo, MI 49008-1631	Mark L. Maki	Reg. No. 36 589
Phone: (269) 381-1156	Liane L. Churney	Reg. No. 40 694
Fax: (269) 381-5465	Brian R. Tumm	Reg. No. 36 328
	Steven R. Thiel	Reg. No. 53 685
	Donald J. Wallace	Reg. No. 43 977
	Sidney B. Williams, Jr.	Reg. No. 24 949

Correspondence: Letter Transmitting Appeal Brief Fee and
Appellant's Brief on Appeal Under 37 CFR §41.37
dated March 5, 2007

190.05/05



PATENT APPLICATION

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Mail Stop Appeal Brief - Patents
Commissioner for Patents
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LETTER TRANSMITTING APPEAL BRIEF FEE

Sir:

Enclosed is Appellant's check in the sum of \$500.00, representing payment of the Appeal Brief fee. The Commissioner is hereby authorized to charge any additional fee which may be required by this paper, or to credit any overpayment to Deposit Account No. 06-1382. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

IN DUPLICATE

Brian R. Tumm

BRT/ad

FLYNN, THIEL, BOUTELL
& TANIS, P.C.
2026 Rambling Road
Kalamazoo, MI 49008-1631
Phone: (269) 381-1156
Fax: (269) 381-5465

Dale H. Thiel	Reg. No. 24	323
David G. Boutell	Reg. No. 25	072
Terryence F. Chapman	Reg. No. 32	549
Mark L. Maki	Reg. No. 36	589
Liane L. Churney	Reg. No. 40	694
Brian R. Tumm	Reg. No. 36	328
Steven R. Thiel	Reg. No. 53	685
Donald J. Wallace	Reg. No. 43	977
Sidney B. Williams, Jr.	Reg. No. 24	949

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PATENT APPLICATION

IN THE U.S. PATENT AND TRADEMARK OFFICE

March 5, 2007

Applicant(s): Wenjie DENG

For: POWERED SURGICAL HANDPIECE WITH PRECISION SUCTION
CONTROL

Serial No.: 10/047 742 Group: 3731
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Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT'S BRIEF ON APPEAL UNDER 37 CFR §41.37

Sir: .

This is an appeal from 37 CFR §41.37 to the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office from the final rejection of claims in the above-identified application.

One copy of Appellant's Brief is filed herewith, together with the requisite fee.

(i) REAL PARTY IN INTEREST

The real party in interest for this application is Stryker Corporation having a place of business at Kalamazoo, Michigan by virtue of an Assignment from the inventor as recorded at the PTO on March 2, 2007 at Reel 018950/Frame 0129.

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(ii) RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(iii) STATUS OF CLAIMS

The above-identified patent application as amended contains 28 pending claims, namely Claims 1-7, 9-12, 14-24 and 29-34. Claims 8, 13 and 25-28 have been cancelled. Claims 10-12 and 14-24 are allowed. Claims 1-7, 9, 29, 30 and 33 have been finally rejected and are being appealed. Claims 31, 32 and 34 have been withdrawn from consideration as being directed to a non-elected species. Rejected Claims 29 and 30 are generic to each of the disclosed species.

(iv) STATUS OF AMENDMENTS

The claims were finally rejected in an Office Action mailed August 31, 2006.

On November 22, 2006, Appellant filed a Response including an amendment which cancelled Claims 30 and 34 and amended Claim 29 to include the features of Claim 30.

The Examiner issued an Advisory Action on December 22, 2006 maintaining the final rejection of the claims and not entering the amendment, but indicating that the objections to the specification and drawings were overcome by the Response. Thus, the objections to the specification and drawings will not be addressed herein.

The claims in the attached Appendix (viii) correspond to the claims filed in Appellant's Response mailed October 27, 2005 that remain rejected.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

Appellant's invention is directed to a surgical handpiece for actuation of a cutting accessory attached thereto.

Appellant's Claim 1 recites a surgical handpiece 20 for actuation of a cutting accessory 24 as disclosed at amended paragraph [0026], lines 5-8 of Appellant's specification. The handpiece 20 includes a housing 22 formed to define a suction bore 46 that extends from the cutting accessory 24 and a suction passage 47 as disclosed at paragraph [0030], lines 7-13. Claim 1 further recites a power generating unit 28 disposed in the housing 22 for actuating the cutting accessory 24 as disclosed at amended paragraph [0026], lines 10-14 of Appellant's specification. Claim 1 further recites a valve assembly including a valve chamber 52 defined by the housing 22 between the suction bore 46 and the suction passage 47 and a valve 50 rotatably mounted in the valve chamber 52 as disclosed at paragraph [0031], lines 1-6. Claim 1 recites the valve 50 including a movable control member 64, 88 disposed outside of the housing as disclosed at paragraph [0035] of Appellant's specification. Claim 1 recites the valve 50 having a valve bore 62 that extends therethrough with first and second non-circular valve bore openings 96 at opposite ends of the valve bore, wherein the first valve bore opening 96 is selectively placed in registration with the suction bore 46 and a second valve bore opening is placed in registration with the suction passage 47 when the valve 50 is rotated as disclosed at paragraph [0051], lines 5-15 of Appellant's specification. Claim 1 further recites the valve bore opening 96 having a first narrow width section 104 and a second, wide width section 102 as disclosed at amended paragraph [0038], lines 1-14. Claim 1 recites the second valve bore opening being shaped in a similar manner as the first valve bore opening and placed in registration with the suction passage 47 during rotation of the valve 50, the second valve bore opening having a first narrow width section and a second wide width section as disclosed at amended paragraph [0038], lines 13-23.

Claim 2 recites that the valve 50 comprises a valve stem 56 shaped to have a stem bore 58 and a valve barrel 60 having a portion that extends through the stem bore 58 to define the

valve bore 62 as disclosed at paragraph [0031], lines 9-18 of Appellant's specification. Claim 2 further recites that the valve barrel 60 is formed of flexible material as disclosed at paragraph [0036], lines 3-12. Claim 2 recites the valve bore 62 having valve bore openings 96 as disclosed at amended paragraph [0038], lines 1-7.

Claim 3 recites that the valve barrel 60 defines a rib 106 located around a perimeter of each valve bore opening 96, each rib 106 being positioned to extend away from the valve stem 56 and dimensioned to abut a surface of the housing that defines the valve chamber 52 as disclosed at paragraph [0039], lines 1-11 of Appellant's specification.

Claim 4 recites the valve barrel 60 formed to have a circular rib 94 that extends circumferentially around the valve stem 56, the rib dimensioned to extend away from the valve stem and abut a surface of the housing defining the valve chamber 52 as disclosed at paragraph [0037], lines 8-18 of Appellant's specification.

Claim 5 recites an indexing assembly 116 attached to the valve assembly and housing 22 to provide a resistance to the rotation of the valve 50 when the valve is rotated to a position in which the first narrow width section 104 of the valve bore opening 96 is placed in partial registration with the suction bore 46 as disclosed at amended paragraph [0041], lines 3-9 of Appellant's specification.

Claim 6 recites the housing formed so that the valve chamber 52 comprises a closed bore that has a base defined by an inner surface of the housing 22 as shown in Appellant's Figure 3A. Claim 6 further recites that the valve 50 is formed with an end surface located adjacent the inner surface of the housing 22 that defines the base of the valve chamber 52 as illustrated by circular end plate 70 in Figure 4 and disclosed at paragraph [0032], lines 10-13 of Appellant's specification. Claim 6 further recites a retaining member 108 positioned in one of the valve 50 and the housing 22 and positioned to engage the other one of the housing and the

valve to removably hold the valve 50 in the valve chamber 52 as disclosed at amended paragraphs [0040] and [0070].

Independent Claim 7 includes features discussed above and also recites a retaining member 108 positioned in a bore defined in the valve 50, the bore being positioned so that the retaining member 108 is directed towards a surface of the housing, and a removable locking member 112 positioned to engage the retaining member 108 as disclosed in amended paragraph [0040] of Appellant's specification.

Claim 9 recites the first and second valve bore openings 96 being identically shaped but inverted relative to one another on opposite sides of the valve 50 such that the first narrow width section 104 of the first valve bore opening is disposed circumferentially adjacent the second wide width section 102 of the second valve bore opening and the second wide width section of the first valve bore opening is disposed circumferentially adjacent the first narrow width section of the second valve bore opening as disclosed at amended paragraph [0038], lines 6-23 of Appellant's specification.

Independent Claim 29 recites a surgical handpiece including a housing 22 defining a suction bore 46, a power generating unit 28, 39 disposed in the housing and a valve assembly including a valve member 50 positioned to regulate fluid flow through the suction bore 46 as set forth above. Claim 29 further recites a suction mount arrangement including a suction mount 124 that is rigidly mounted to the housing 22 of the handpiece and that is fitted to an opening into the suction bore 46 as disclosed at paragraph [0043], lines 4-12 of Appellant's specification. The suction fitting 49 includes a groove 146 extending about a circumference thereof, the groove coacting with the suction mount arrangement to enable rotation of the suction fitting 49 with respect to the suction mount 124 as disclosed at paragraph [0046], lines 1-6.

Claim 30 recites the suction mount arrangement having a removable locking member 156, 164, 172 (three embodiments) that coacts with the groove of the suction fitting 49 so that

the locking member releasably and rotatably holds the suction fitting 49 to the suction mount 124 as disclosed at paragraph [0049]; paragraph [0061], lines 1-9 and paragraph [0065] of Appellant's specification.

Claim 33 recites the groove comprising an outer groove 162 extending about an outer circumference of the suction fitting 49, the suction mount 124 further comprising an inner groove 160 extending about an inner circumference of the suction mount, the outer groove and inner groove being in alignment when the suction fitting 49 is secured to the suction mount, the removable locking member comprising a retaining ring 164 positioned within the grooves 160, 162 as illustrated in Appellant's Figure 9 and as disclosed at paragraph [0061], lines 1-11.

(vi) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The rejections presented for review are as follows:

1. The rejection of Claims 1 and 9 under 35 USC §103 as being unpatentable over Sjostrom, (U.S. Patent No. 5 871 493) in view of Cook, (U.S. Patent No. 5 241 990). Claim 5 stands or falls with the rejection of Claim 1 based on Sjostrom and Cook.

2. The rejection of Claims 1 and 5 under 35 USC §103 as being unpatentable over Deng (U.S. Patent No. 6 436 067) in view of Cook.

3. The rejection of Claims 1 and 7 under the judicially created Doctrine of Obviousness-type Double Patenting as being unpatentable over Claims 7-10 of U.S. Patent No. 6 312 441 in view of Cook. Claims 5 and 6 stand or fall with the rejection of Claim 1 based on Claims 7-10 of the '441 patent in view of Cook.

4. The rejection of Claims 2-4 without any rejection being set forth in the Office Action.

5. The rejection of Claim 29, 30 and 33 under 35 USC §103 as being unpatentable over Sjostrom in view of Wyzenbeek

(U.S. Patent No. 2 525 329) and Cox (U.S. Patent No. 4 113 288).

(vii) ARGUMENT

Rejection under 35 USC §103 of Claims 1 and 9 over Sjostrom in view of Cook.

Claim 1

Sjostrom discloses a surgical instrument handpiece and system including an aspiration channel 630 and a rotatable valve 640 that controls flow therethrough as shown in Figure 3A below.

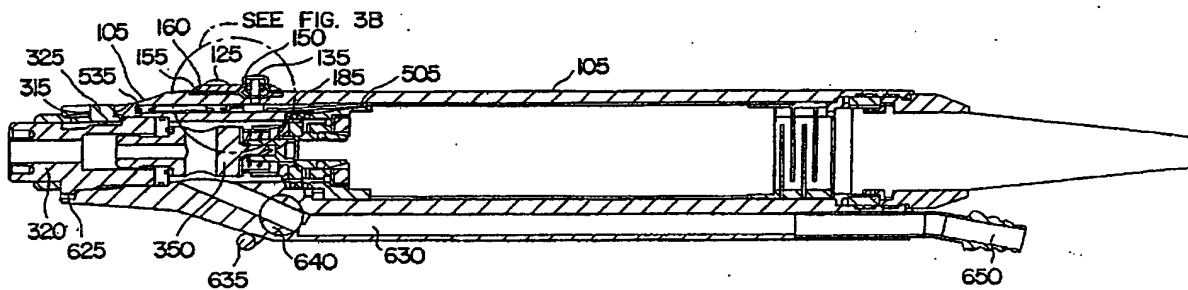


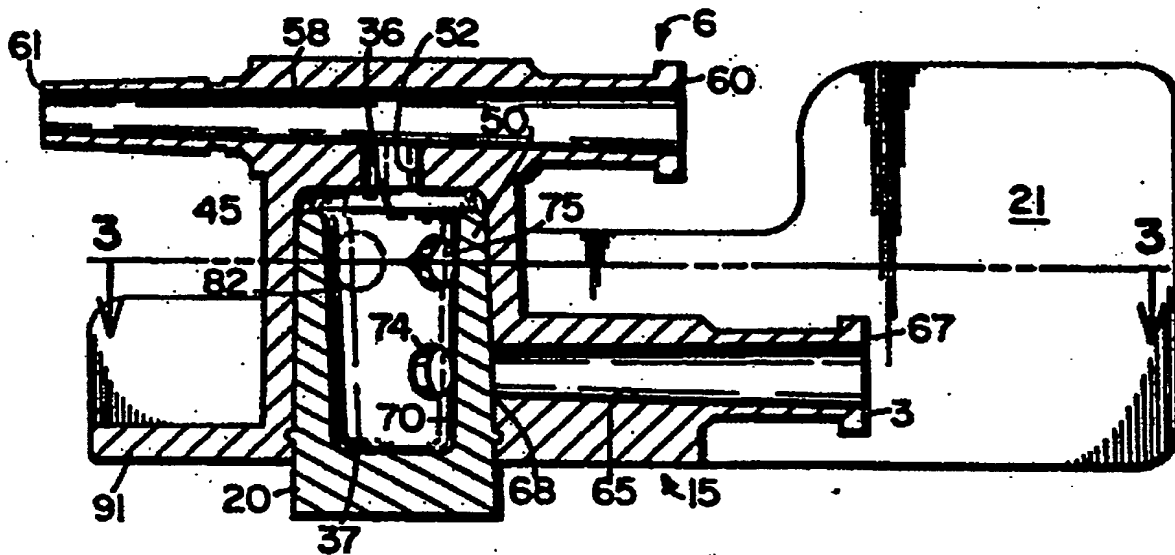
FIG. 3A OF U.S. PAT. NO. 5 871 493

A handle 635 positioned on the bottom of the handpiece near the distal end thereof rotates the valve 640 about an axis to permit one-handed, finger control of flow through the aspiration channel 630. The aspiration channel 630 ends at an aspiration spigot 650 at the proximal end of the handpiece. Further, the valve 640 comprises a solid cylindrical valve body having a channel or path extending through the entirety thereof that appears to have a constant diameter matching the diameter of the aspiration channel 630 along the entire length thereof.

Cook discloses a combination irrigation/aspiration valve and probe for laparoscopy. The valve device includes a rotatable valve body 20 defined by a rotatable handle 35 for rotating a hollow annular valve wall 30 having a large opening at a top axial end 36. The valve body 20 includes a pair of

vertically spaced apertures 74, 75 opening through the valve body as shown in Figure 2 of Cook below.

FIG. 2 OF U.S. PAT. NO. 5 241 990



Rotation of the valve body 20 places a first aperture 74 in alignment with an irrigation source or a second aperture 75 in alignment with a separate aspiration/suction source. As shown in Figure 2, top axial end 36 of the cylinder opens into channel 58 to selectively enable flow of irrigation or suction.

Column 5, lines 47-55 of Cook discloses the use of different shapes for the apertures 74, 75 including a tear-drop shape. The apertures 74, 75 of Cook open into the same large inner flow chamber 70 defined within the valve body, which opens axially into the channel 58, rather than providing a direct passage through the valve body as in Sjostrom.

Column 3, lines 26-34 of Cook discloses and Figure 2 shows the annular valve body 20 having a very short distance from the outside of the valve wall through the apertures 74, 75 to the inner flow chamber 70. According to Cook, this short distance prevents debris from lodging in the apertures 74, 75. Therefore Cook teaches away from providing any aperture, and specifically a tear-drop shaped aperture, that extends through a valve body a significant distance.

The valve structure of Cook is designed to selectively communicate irrigation or aspiration through the same valve body. Thus, Cook discloses the valve having two input pathways through apertures 74, 75 depending on the desired effect thereof. Further, the Cook valve body 20 essentially provides a 90° turn for the flow path. Flow enters or exits one of the apertures 74, 75 and then travels upwardly or downwardly through the large top axial end 36 of the valve body 20. Thus the separate tear-drop shaped apertures 74, 75 of Cook each merely open into the large hollow inner flow chamber 70 of the valve body and do not extend through the entirety thereof.

There is no motivation, absent Appellant's specification, to change the shape of the bore of Sjostrom to a tear-drop shape, much less a tear-drop shape along the entire length of the bore. As discussed above, Cook teaches that the distance from the outside of the valve body 20 to the inner flow chamber 70 is relatively short to discourage debris from lodging in the aperture. Therefore, it is unclear why one of ordinary skill would use the tear-drop shape for an aperture having a short length of Cook for the valve of Sjostrom that extends through the entire valve body. Further, Cook teaches away from an aperture extending through a valve body having a tear-shape.

Moreover, Appellant's Claim 1 recites a valve "being formed to have a valve bore that extends therethrough with first and second non-circular valve bore openings at the opposite ends of said valve bore". As discussed above, Sjostrom does not disclose a non-circular valve bore opening and Cook does not disclose such openings at opposite ends of a valve bore that extends through a valve body. Instead, as discussed above, the Cook valve body requires a large chamber therein to receive one end of the valve bore.

Further, Appellant's Claim 1 recites "the first valve bore opening being shaped to have a first narrow width section that is first placed in registration with the suction bore"

and "the second valve bore opening being shaped to have a first narrow width section that is first placed in registration with the suction passage during the rotation of the valve". As discussed above, Cook discloses one valve bore opening in registration with a passage while the other valve bore opening simply opens into a large chamber 70 within the valve body rather than a second passage.

Further, if one of ordinary skill in the art were able to substitute the valve body having a tear-drop shaped aperture of Cook for the channel in the valve 640 of Sjostrom, which Appellant disagrees with, the resulting channel would have a tear-drop shape at one end for a small distance and then a large opening or chamber extending through the rest of the valve body to open at the other end of the passage. Such a structure would conform to the teachings of Cook which discloses a short flow path through the aperture to prevent debris from clogging the passageway. Therefore, Appellant's claimed invention would not result.

For the above reasons, Claim 1 is believed allowable over Sjostrom in combination with Cook.

CLAIM 9

Turning to the dependent claims, Claim 9 further recites that the "first and second valve bore openings are identically shaped but inverted relative to one another on opposite sides of said valve such that said first narrow width section of said first valve bore opening is disposed circumferentially adjacent said second wide width section of said second valve bore opening, and said second wide width section of said first valve bore opening is disposed circumferentially adjacent said first narrow width section of said second valve bore opening". This type of "inverted" relationship between the spaced valve bore openings is not disclosed or suggested in any of the prior art of record. Appellant's two inverted bore openings result in an unusual path through the valve body as best illustrated in Appellant's Figure 6.

The Office Action at page 4, last five lines, states that it would have been obvious to have the bore inverted relative to each other because it would not make any sense to have one opening have its enlarged section align with a small section of the opening at the opposite end of the bore. The Office Action further states that not having this relationship "would prevent proper regulation of the suction pressure". This statement is traversed and not understood.

Cook discloses an irrigation aspiration valve having a small tear-shaped aperture extending through a thin wall thereof and opening into a large chamber within the valve body. There is no disclosure or suggestion that the shape of the bore opening that enters the inner chamber of the valve needs to be inverted. Further, the large size of the inner flow chamber in the valve body of Cook relative to the aperture appears to result in no negative consequence for the operation of the device.

It is unclear how having an enlarged section at one end of the bore opening as compared to a small opening section at the other end would prevent proper regulation of the suction pressure as suggested in the Office Action. Appellant notes that the most restricted tear-drop shaped first bore opening having the smallest path would primarily restrict flow regardless of a greater size for the second bore opening at the other end of the bore.

Further, it is unclear why one of ordinary skill in the art would modify Sjostrom by providing the tear-drop shaped valve bore of Cook through the entirety of the valve body, and then further modify the tear-drop shaped bore of Cook, already substituted for the bore of Sjostrom, by inverting the shape at one end, except in order to obtain Appellant's invention recited in Claim 9.

For the above reasons, Claim 9 is believed allowable over Sjostrom in view of Cook.

Rejection of Claims 1 and 5 under 35 USC §103 as unpatentable over Deng (U.S. Patent No. 6 436 067) in view of Cook.

The '067 patent discloses a powered surgical handpiece having a suction bore 44 and a suction barrel 48 separated by a valve 52 located in a valve chamber 54. The valve 52 includes a valve barrel 56 having a barrel bore 58 therethrough, a boss 64 and a lever arm 60 as illustrated in Figure 4A below.

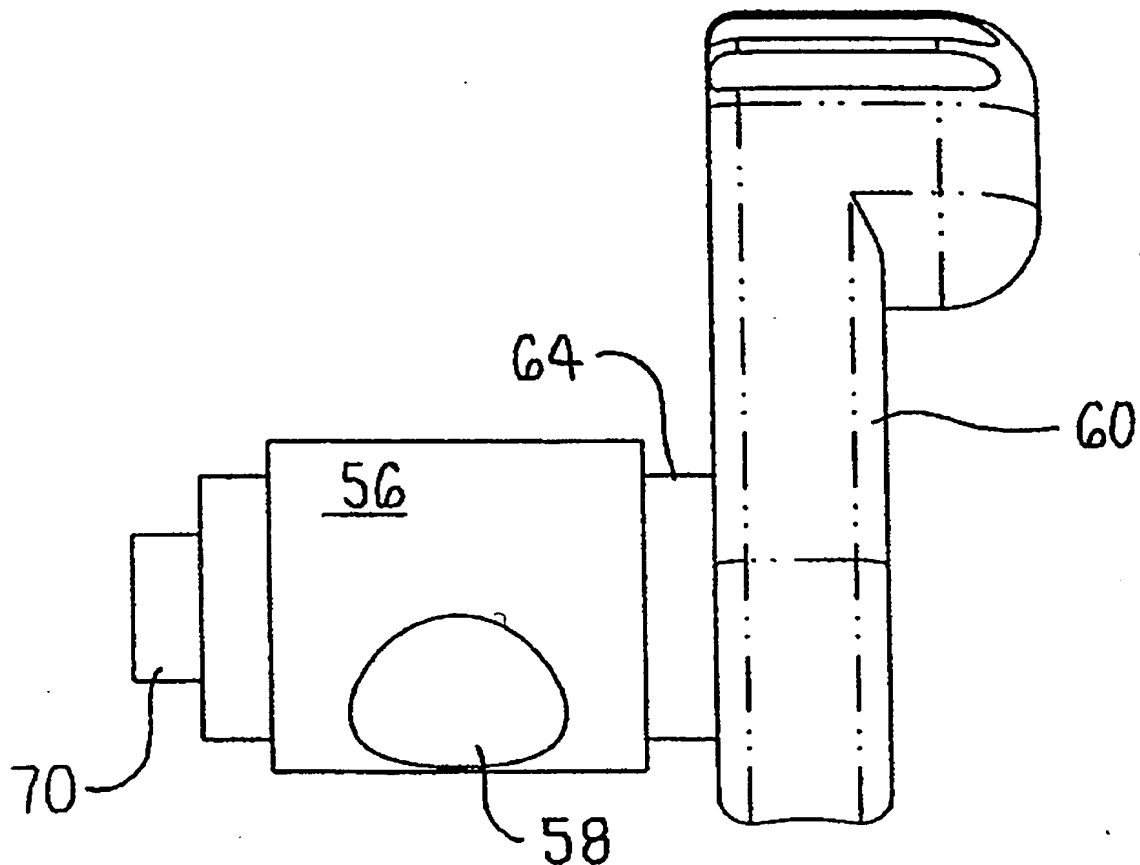


FIG. 4A OF U.S. PAT. NO. 6 436 067

The valve bore 58 of Deng appears to be essentially identical in diameter to the flow passages connected therebetween. Thus, for purposes of argument with respect to Claim 1, the '067 patent may be considered essentially equivalent to Sjostrom.

For the reasons set forth above with respect to the rejection of Claim 1 based on the combination of Sjostrom and Cook, Appellant's believe the features of Cook cannot properly be combined with the '067 patent. Therefore, independent Claim 1, and Claim 5 dependent therefrom, are believed distinguishable over the '067 patent in view of Cook.

Rejection under the judicially created doctrine of obviousness-type double patenting of Claims 1 and 7 over Claims 7-10 of Deng (U.S. Patent No. 6 312 441) in view of Cook

CLAIM 1

Claim 7 of the '441 patent to Deng recites a powered surgical handpiece including a housing, a motor fitted in the housing, a suction valve having a valve body that is seated in a valve bore of the housing to rotate about an axis, a single valve stem and a valve arm attached to the valve stem.

Further, Claim 7 of the '441 patent recites a retaining member removably fitted to the housing to releasably engage a portion of the valve arm to prevent removal of the suction valve from the valve bore. In the '441 patent, the valve 44 includes a valve body 102 having a valve stem 106 combined with a lever arm. The valve body 102 includes a throughbore 104. A groove 109 is utilized to retain the valve in a valve receiving bore 110 located between a suction bore 42 and suction passage 112.

The rotatable valve body of Claim 7 of the '441 patent generally corresponds to the valve arrangement disclosed in Sjostrom. The throughbore 104 appears to have a constant diameter equivalent to the diameter of the bores 42, 112. As set forth above with respect to Sjostrom, there is no motivation to provide the tear-shaped aperture of Cook for the valve recited in Claims 7-10 of the '441 patent. Further, as discussed above, there is no motivation to substitute a tear-shaped opening of Cook for the bore hole extending through the entirety of the valve body of the '441 patent. Cook teaches a

tear-shaped bore having a short passageway opening into a chamber in a valve body.

Appellant's Claim 1 further recites the "first valve bore opening being shaped to have a first narrow width section that is first placed in registration with the suction passage during the rotation of the valve from the closed state to the fully open state and a second, wide width section that is placed in registration with the suction passage as the valve is further rotated toward the fully open state". Claim 1 also recites the "second valve bore opening being shaped to have a first narrow width section that is first placed in registration with the suction passage during the rotation of the valve from the closed state to the fully open state and a second, wide width section that is placed in registration with the suction passage as the valve is further rotated toward the fully open state". Thus, the first and second valve bore openings are essentially inverted so that during rotation of the valve, the narrow width sections of both bore openings first register with the suction bore and suction passage, respectively.

As discussed above, the prior art does not disclose or suggest this arrangement. Claims 7-10 of the '441 patent simply recite a throughbore that extends perpendicularly to the axis of rotation of the valve body. If one were to substitute the tear-shaped bore of Cook with the bore claimed in the '441 patent, while ignoring that the tear-shaped bore does not extend through the valve body in Cook, which Appellant disagrees with, the modified bore would have the narrow width section extending therethrough such that during opening one end of the bore would open at the narrow width section and the other end of the bore would open at the wide width section.

For the above reasons, Appellant believes Claim 1 distinguishes over the obviousness-type double patenting rejection based on Claims 7-10 of the '441 patent and Cook.

Claim 7

Appellant's independent Claim 7 recites a surgical handpiece including a housing, power generating unit, valve assembly, valve and retaining member. The valve includes a valve bore having a "non-circular valve bore opening" that is selectively placed in registration with the suction bore as the valve is rotated from a closed state to a fully open state. The valve bore opening is shaped to have a "first narrow width section as first placed in registration with the suction bore during the rotation of the valve from the closed state to the fully opened state and a second, wide width section that is placed in registration with the suction bore as said valve is further rotated toward the fully open state". Thus, unlike Claim 1, the properties of only one of the two valve bore openings is recited in Claim 7.

As discussed above, the '441 patent does not claim any non-circular valve bore opening, much less disclose a tear-shaped valve bore opening.

Cook merely discloses a tear-shaped valve bore opening having a small depth and opening into a large chamber within the valve body. Then a second larger opening is provided along the axis of rotation of the valve body in order to provide an exit path for the flow therethrough.

Once again, if one of ordinary skill in the art were to substitute the valve body of Cook, for the valve in the claims of the '441 patent, the result would be a valve bore opening of short length opening into a large chamber within a bore body and followed by a second larger opening, rather than a valve bore opening as recited in Appellant's Claim 7.

For the above reasons, Appellant believes Claim 7 distinguishes over the obviousness-type double patenting rejection based on Claims 7-10 of the '441 patent and Cook.

Rejection of Claims 2-4

No prior art has been applied to reject Claims 2-4. Further, there is no rejection of Claims 2-4 under 35 USC

§112. Therefore allowance of Claims 2-4 is respectfully requested.

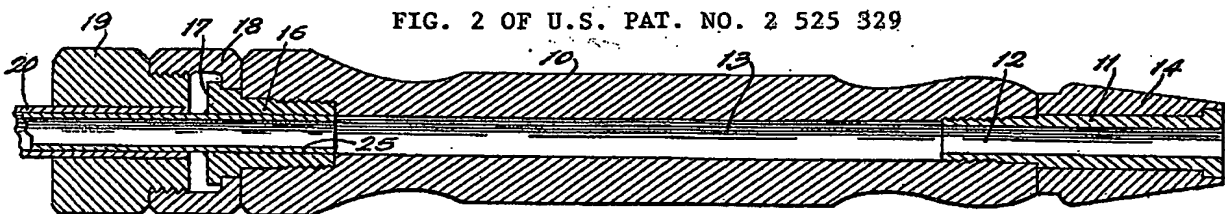
Rejection of Claims 29, 30 and 33 under 35 USC §103 as being unpatentable over Sjostrom in view of Wyzenbeek (U.S. Patent No. 2 525 329) and Cox (U.S. Patent No. 4 113 288).

Claim 29

Appellant's Claim 29 recites a surgical handpiece including a housing, a power generating unit and a valve assembly. Claim 29 further recites a suction mount arrangement having a suction mount rigidly mounted to the housing and fitted to an opening into the suction bore and "a suction fitting that is rotatably mounted to the proximal end of said suction mount, said suction fitting having a groove extending about a circumference thereof, said groove coacting with said suction mount arrangement to enable rotation of said suction fitting with respect to said suction mount".

Sjostrom discloses a surgical handpiece including a housing and valve assembly 640. Further, Figure 3A of Sjostrom shows a spigot 650 at a proximal end of the handpiece for connection to a source of suction. There is no disclosure or suggestion of a suction fitting rotatably mounted to the proximal end of the spigot 650. Instead, column 12, lines 30-31 of Sjostrom merely discloses connecting the spigot to a source of suction.

Figure 2 of Wyzenbeek below shows a trocar apparatus having a swivel member 14 with an opening receiving a tubular member 11 that threads to the handle 10 of the trocar apparatus.



The tubular member 11 has an annular stop at an opposite end from the threaded end to maintain the swivel member 14 on the

apparatus. A flexible tube 15 attaches to the swivel member 14.

Cox discloses swivel couplings 20, 22 for a system that dispenses fuel from a reservoir tank into an automobile tank. A coupling includes a hose connection component 42 and a component 44 for connection to a rigid member 82 which may be a nozzle or pump. Figure 3 of Cox below shows the component 44 telescopically received in the component 42 with a nylon-like, somewhat-flexible flat ring providing mechanical locking.

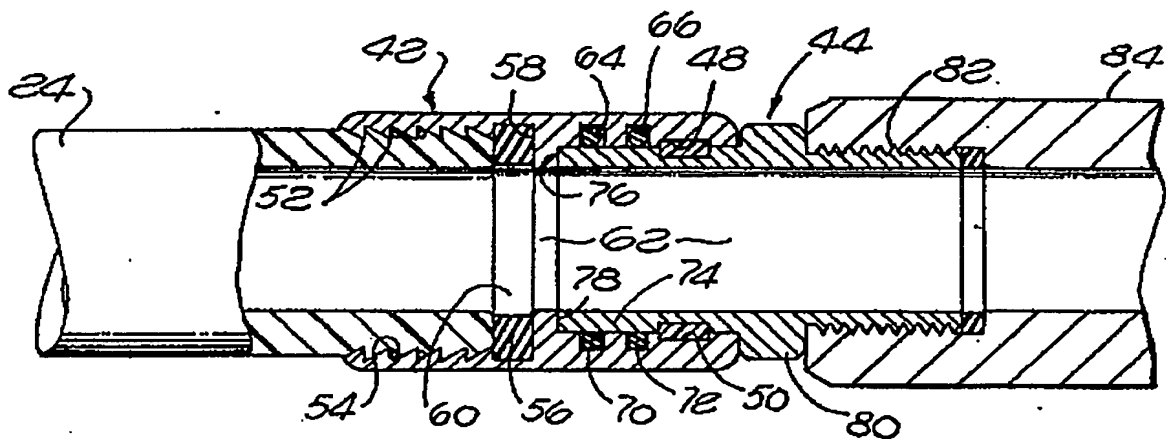


FIG. 3 OF U.S. PAT. NO. 4 113 288

The ring 46 engages both an internal groove 48 in component 42 and an external groove 50 in component 44. The ring 46 is sufficiently flexible to enable mating engagement of the components 42 and 44 with the ring 46 therebetween. Once mated, however, the components 42 and 44 are effectively fixedly locked together. There is no disclosure or suggestion of releasing the components 42 and 44 from one another once engaged.

There is no motivation to substitute the removable locking ring of Wyzenbeek for the spigot of Sjostrom. Moreover, even if Wyzenbeek were combined with Sjostrom, which Appellant disagrees with, the rejection still would not be proper in view of the additional reference to Cox.

The rejection relies on Cox to provide a suction fitting for Sjostrom including a rotatable coupling to prevent

rotation of one tube from transferring to another tube. Modifying key elements of the secondary reference to Wyzenbeek to include features from Cox would not have been obvious to one of ordinary skill in the art. There is no motivation to simply substitute or provide the rotatable coupler of Wyzenbeek to Sjostrom and then further modify the provided Wyzenbeek coupler with the additional structure of Cox, unless improper hindsight is utilized.

For the above reasons, Claim 29 is believed allowable over the applied prior art. Upon allowance of Claim 29, rejoinder and allowance of non-elected dependent Claims 31 and 32 is respectfully requested.

Claims 30 and 33

Appellant's Claim 30 recites "a removable locking member that coacts with a groove of said suction fitting so that said locking member releasably" holds said suction fitting to the suction mount. As discussed above and as disclosed at column 3, lines 26-30 of Cox, the Cox O-ring 46, once mated with the components 42 and 44, effectively permanently locks the components together.

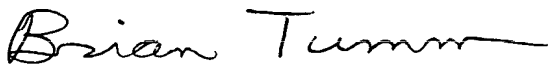
Appellant's arrangement enables the locking member to selectively release the suction fitting, as well as rotatably secure the suction fitting to the suction mount. As illustrated in Appellant's elected Figure 9, for example, the small bores 166 enable release of the suction fitting from the suction mount.

For the above reasons Claim 30, and Claim 33 dependent therefrom, are believed allowable over the applied prior art.

For the reasons advanced above, it is respectfully submitted that the rejection of Claims 1-7, 9, 29, 30 and 33 is clearly in error and should be reversed.

Favorable consideration is respectfully solicited.

Respectfully submitted,



Brian R. Tumm

BRT/ad

FLYNN, THIEL, BOUTELL	Dale H. Thiel	Reg. No. 24 323
& TANIS, P.C.	David G. Boutell	Reg. No. 25 072
2026 Rambling Road	Terryence F. Chapman	Reg. No. 32 549
Kalamazoo, MI 49008-1631	Mark L. Maki	Reg. No. 36 589
Phone: (269) 381-1156	Liane L. Churney	Reg. No. 40 694
Fax: (269) 381-5465	Brian R. Tumm	Reg. No. 36 328
	Steven R. Thiel	Reg. No. 53 685
	Donald J. Wallace	Reg. No. 43 977
	Sidney B. Williams, Jr.	Reg. No. 24 949

Encl: Appendices
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(viii) CLAIMS APPENDIX - LISTING OF CLAIMS

1. A surgical handpiece for actuation of a cutting accessory attached to said handpiece, said handpiece comprising:

a housing, said housing formed to define a suction bore that extends from the cutting accessory and a suction passage;

a power generating unit disposed in said housing for actuating the cutting accessory;

a valve assembly, said valve assembly including:

a valve chamber defined by said housing between the suction bore and the suction passage; and

a valve rotatably mounted in the valve chamber and including a movable control member disposed outside of said housing, said valve being formed to have a valve bore that extends therethrough with first and second non-circular valve bore openings at the opposite ends of said valve bore, wherein the first valve bore opening is selectively placed in registration with the suction bore and the second valve bore opening is placed in registration with the suction passage as the valve is rotated from a closed state to a fully open state, the first valve bore opening being shaped to have a first narrow width section that is first placed in registration with the suction bore during the rotation of the valve from the closed state to the fully open state and a

second, wide width section that is placed in registration with the suction bore as said valve is further rotated toward the fully open state, the second valve bore opening being shaped to have a first narrow width section that is first placed in registration with the suction passage during the rotation of the valve from the closed state to the fully open state and a second, wide width section that is placed in registration with the suction passage as the valve is further rotated toward the fully open state.

2. The surgical handpiece of Claim 1, wherein said valve comprises:

a valve stem formed from rigid material and further shaped to have a stem bore that extends through said valve member; and

a valve barrel formed of flexible material and having a portion which extends through the stem bore so as to define the valve bore and the valve bore openings.

3. The surgical handpiece of Claim 2, wherein said valve barrel defines a rib that is located around a perimeter of each said valve bore opening, each said rib being positioned to extend away from said valve stem and being dimensioned to abut a surface of said housing that defines the valve chamber.

4. The surgical handpiece of Claim 2, wherein said valve barrel is further formed to have a circular rib that

extends circumferentially around said valve stem, said rib being dimensioned to extend away from said valve stem and to abut a surface of said housing that defines the valve chamber.

5. The surgical handpiece of Claim 1, further including an indexing assembly attached to said valve assembly and said housing for providing a resistance to the rotation of said valve when said valve is rotated to a position in which the first narrow width section of the first valve bore opening is placed in partial registration with the suction bore.

6. The surgical handpiece of Claim 5, wherein:
said housing is formed so that the valve chamber comprises a closed bore that has a base defined by an inner surface of said housing;

said valve is formed with an end surface that is located adjacent the inner surface of said housing that defines the base of the valve chamber; and

a retaining member is positioned in one of said valve and said housing and is positioned to engage the other one of said housing and said valve to removably hold said valve in the valve chamber.

7. A surgical handpiece for actuation of a cutting accessory attached to said handpiece, said handpiece comprising:

a housing, said housing formed to define a suction bore that extends from the cutting accessory;

a power generating unit disposed in said housing for actuating the cutting accessory;

a valve assembly, said valve assembly including:

a valve chamber formed in said housing to intersect the suction bore, said valve chamber comprising a closed bore that has a base defined by an inner surface of said housing;

a valve rotatably mounted in the valve chamber, said valve being formed to have a valve bore and an end surface that is located adjacent the inner surface of said housing that defines the base of the valve chamber, said valve bore having a non-circular valve bore opening that is selectively placed in registration with the suction bore as the valve is rotated from a closed state to a fully open state, the valve bore opening being shaped to have a first narrow width section that is first placed in registration with the suction bore during the rotation of the valve from the closed state to the fully open state and a second, wide width section that is placed in registration with the suction bore as said valve is further rotated toward the fully open state;

a retaining member positioned in a bore defined in said valve, said bore being positioned so that said retaining member is directed towards a surface of said housing; and

a removable locking member positioned to engage said retaining member.

9. The surgical handpiece of Claim 1, wherein said first and second valve bore openings are identically shaped but inverted relative to one another on opposite sides of said valve such that said first narrow width section of said first valve bore opening is disposed circumferentially adjacent said second wide width section of said second valve bore opening, and said second wide width section of said first valve bore opening is disposed circumferentially adjacent said first narrow width section of said second valve bore opening.

29. A surgical handpiece for actuation of a cutting accessory attached to said handpiece, said handpiece comprising:

a housing defining a suction bore that extends from the cutting accessory;

a power generating unit disposed in said housing for actuating the cutting accessory;

a valve assembly including a valve member positioned to regulate fluid flow through the suction bore;

a suction mount arrangement having a suction mount that is rigidly mounted to said housing and that is fitted to an opening into the suction bore, said suction mount having a proximal end that extends away from said housing; and

a suction fitting that is rotatably mounted to the proximal end of said suction mount, said suction fitting

having a groove extending about a circumference thereof, said groove coacting with said suction mount arrangement to enable rotation of said suction fitting with respect to said suction mount.

30. The surgical handpiece for actuation of a cutting accessory of Claim 29, wherein said suction mount arrangement further comprises a removable locking member that coacts with the groove of said suction fitting so that said locking member releasably and rotatably holds said suction fitting to said suction mount.

33. The surgical handpiece for actuation of a cutting accessory of Claim 30, wherein said groove comprises an outer groove extending about an outer circumference of said suction fitting, said suction mount further comprising an inner groove extending about an inner circumference of said suction mount, said outer groove and said inner groove being in alignment when said suction fitting is secured to said suction mount, and said removable locking member comprises a retaining ring positioned within said grooves.

(ix) EVIDENCE APPENDIX

Not applicable.

(x) RELATED PROCEEDINGS

Not applicable.